What is claimed is:

1. An optical receiver using a variable optical attenuator comprising:

a base member formed in a predetermined shape;

an input optical fiber emitting an optical signal toward the base member

an optical receiving means provided at one side of the base member, and receiving an optical signal; and

a variable optical attenuator actuated by an electrostatic force, changing a path of laser emitted from the input optical fiber, and thus adjusting optical power made to be incident to the optical receiving means.

2. The receiver of claim 1, wherein the base member comprises:

a plate portion having a certain thickness and an area;

an optical receiving means-mounted portion formed at one side of the plate portion so as to have a certain area and a depth, and at which the optical receiving means is mounted;

a variable optical attenuator-mounted portion formed at a side portion of the optical receiving means-mounted portion so as to have a certain shape and a depth, and at which the variable optical attenuator is mounted; and

an optical path groove making the optical receiving means-mounted portion and the variable optical attenuator-mounted portion communicate with each other, and thus through which laser passes.

3. The receiver of claim 1, wherein the optical receiving means comprises:

a block for fixing an optical diode which is fixed at the base member; and

an optical diode provided at an optical diode active area where laser is receiving, and mounted at the block for fixing the optical diode.

4. The receiver of claim 1, wherein the base member comprises:

a plate portion having a certain thickness and an area;

a variable optical attenuator-mounted portion formed at one side of the plate portion so as to have a certain shape and a depth, and at which the variable optical attenuator is mounted; and

a fixed mirror part formed at one side of the plate portion, and reflecting laser reflected by the variable optical attenuator to the optical receiving means mounted at the base member.

5. The receiver of claim 4, wherein the fixed mirror part is an optical channel with a certain width and a depth is formed at the plate portion to communicate with the variable optical attenuator-mounted portion, wherein one side surface of the optical channel is an inclined reflection surface.

6. The receiver of claim 1, wherein a lens for focusing laser to the input optical fiber and the optical receiving means is provided.

7. The receiver of claim 1, wherein the variable optical attenuator comprises:

a substrate portion having a certain area;

an optical fiber-fixed portion formed at one side of the substrate portion, and at which the input optical fiber is fixed;

a linear actuator part formed at the substrate portion, and generating a linear actuating force by an electrostatic force;

a body portion isolated from the substrate portion, extended from one side of the linear actuator part, and moved by the linear actuator part;

a micro mirror part extended from one side of the body portion, and reflecting laser emitted from the input optical fiber according to a movement of the body portion; and

an elastically supporting portion formed at the substrate portion, and elastically supporting the body portion.

8. The receiver of claim 7, wherein the optical fiber-fixed portion is formed so that the input optical fiber fixed at the optical fiber-fixed portion is at a right angle to the optical receiving means.

9. The receiver of claim 7, wherein the reflection surface of the micro mirror part is formed inclined at an angle of 45 to a path of laser emitted from the input optical fiber.

10. The receiver of claim 7, wherein the elastically supporting portion comprises;

projections formed at the substrate portion, and positioned at both sides of the body portion respectively; and

a plurality of leaf springs isolated from the substrate portion, and connecting the projections and the body portion.

11. The receiver of claim 7, wherein components of the variable optical attenuator are integrally formed, and the variable optical attenuator is produced by a MEMS technology.

12. The receiver of claim 1, wherein the variable optical attenuator comprises;

a substrate portion having a certain area;

an optical fiber-fixed portion formed at one side of the substrate, and at which the input optical fiber is fixed;

a rotary actuator part formed at the substrate portion, and generating an angular movement by an electrostatic force;

a micro mirror part extended from the rotary actuator part, and reflecting laser emitted from the input optical fiber while making angular movement according to the actuation of the rotary actuator part; and

an elastically supporting portion formed at the substrate portion, and elastically supporting the rotary actuator part.

13. The receiver of claim 12, wherein the optical fiber-fixed portion is formed so that the input optical fiber fixed at the optical fiber-fixed portion is at a right angle to the optical receiving means.

14. The receiver of claim 12, wherein the reflection surface of the micro mirror part is formed inclined at an angle of 45 to a path of laser emitted from the input optical fiber.

15, The receiver of claim 12, wherein the rotary actuator part comprises:

a fixed electrode comprising a plurality of circular arc comb teeth formed in a circular arc form and at a certain interval therebetween and an inclination type comb teeth connected with one side end of the circular arc comb teeth; and

a movable electrode comprising circular arc teeth movably positioned between the circular arc comb teeth of the fixed electrode, and a connecting shaft connected with the circular arc comb teeth, and connected with the micro mirror part.

16. The receiver of claim 12, wherein the electrically supporting portion comprises a projection projected from the substrate portion, and a leaf spring isolated from the substrate portion, and connected with an actuation side of the rotary actuator portion.

17. The receiver of claim 12, wherein components of the variable optical attenuator are integrally formed, and the variable optical attenuator is produced by a MEMS technology.

18. The receiver of claim 12, wherein the reflection surface of the micro mirror part is formed inclined to a path of laser emitted from the input optical fiber.

19. The receiver of claim 1, wherein the variable optical attenuator

comprises:

a substrate portion having a certain area;

an optical fiber-fixed portion formed at one side of the substrate portion, and at which the input optical fiber is fixed;

a micro shutter part movably positioned between the input optical fiber and the optical diode of the optical receiving means, and controlling that laser emitted from the input optical fiber is introduced to the optical receiving means;

an actuator part moving the micro shutter part; and

an elastically supporting portion elastically supporting the micro shutter part.

20. The receiver of claim 19, wherein the optical fiber-fixed portion is formed so that the input optical fiber fixed at the optical fiber-fixed portion and the optical receiving means are collinearly aligned.

21. The receiver of claim 19, wherein the actuator part generates a linear actuation force or a rotary actuation force by an electrostatic force.

22. The receiver of claim 19, wherein the micro shutter part moves in a vertical direction to the collinear alignment of the optical fiber-fixed portion and the optical receiving means.

23. The receiver of claim 19, wherein components of the variable optical attenuator are integrally formed, and the variable optical attenuator is produced by a MEMS technology.

24. The receiver of claim 1, wherein the variable optical attenuator comprises;

a substrate portion having a certain area;

an optical fiber-fixed portion formed at one side of the substrate portion, and at which an input optical fiber is fixed;

an incidence side mirror part reflecting laser emitted from the input optical fiber;

an emission side mirror part reflecting laser reflected from the incidence side mirror part to the optical receiving means;

an actuator part actuating the incidence side mirror part or the emission side mirror part and thus adjusting a reflection angle of laser reflected to the optical receiving means; and

an elastically supporting portion elastically supporting the incidence side mirror part or the emission side mirror part actuated by the actuator part.

25. The receiver of claim 24, wherein the optical fiber-fixed portion is formed so that an input optical fiber mounted at the optical fiber-fixed portion is parallel to the optical receiving means.

26. The receiver of claim 24, wherein the incidence side mirror part and the emission side mirror part are integrally formed, the incident side mirror part and the emission side mirror part which are integrally formed, are connected with the actuator part to be linearly moved, and the elastically supporting portion comprises a projection projected from the substrate portion and a leaf spring

isolated from the substrate portion and elastically connecting the projection and the incidence side mirror part.

27. The receiver of claim 26, wherein a reflection surface of the incidence side mirror part is at an angle of 90 to a reflection surface of the emission side mirror part.

28. The receiver of claim 24, wherein the emission side mirror part is extended and projected from the substrate portion, the incidence side mirror part is movably connected to the actuator part, and the elastically supporting portion comprises a projection formed at the substrate portion, and positioned at both sides of the incidence side mirror part respectively, and leaf spring connecting the incidence side mirror part and the projection respectively and elastically supporting the incidence side mirror part.

29. The receiver of claim 28, wherein a reflection surface of the incidence side mirror part is at an angle of 90 to a reflection surface of the emission side mirror part.

30. The receiver of claim 24, wherein components of the variable optical attenuator are integrally formed, and the variable optical attenuator is produced by a MEMS technology.

31. The receiver of claim 1, wherein the variable optical attenuator comprises:

a substrate portion having a certain thickness and an area;

a micro mirror part positioned at the inside of the substrate portion and reflecting laser emitted from the input optical fiber;

a torsion hinge portion connecting the micro mirror part 810 to the substrate portion so that the micro mirror part can makes a tilting actuation; and

a piezoelectric actuator part positioned at the substrate portion, having the micro mirror part make a tilting rotation by a piezoelectric actuation, and thus adjusting a reflection angle of laser reflected to the optical receiving means.

32 The receiver of claim 31, in order to offset a residual stress of the micro mirror part 810, on the basis of the torsion hinge portions, on the opposite side of the piezoelectric actuator part, a dummy part having the same shape as the piezoelectric actuator part is provided.

33. The receiver of claim 31, wherein the input optical fiber and the output optical fiber are aligned respectively so as to be symmetrical on the basis of a vertical axis to a reflection surface 812 of the micro mirror part 810.

34. A method for producing a variable optical attenuator comprising:

forming a substrate, a silicon wafer onto which an embedded insulated film layer and a silicon thin film layer are patterned;

patterning a low-stress insulated thin film layer at upper/lower surfaces of the substrate;

forming a piezoelectric actuator part consisting of a capacitor and upper and lower electrodes by sequentially patterning a conductive lower thin film layer,

a piezoelectric thin film layer and a conductive upper thin film layer on the low-stress insulated thin film layer patterned on the upper surface of the substrate;

eliminating the low-stress insulated thin film layer so as to have a predetermined area at the inside of the substrate;

patterning a reflection surface of a mirror part at the predetermined area where the low-stress insulated thin film layer has been eliminated;

completing a micro mirror part by etching a certain area of a lower substrate, which will be the reflection surface of the mirror part; and

patterning a torsion hinge portion supporting the micro mirror part.

35. The method of claim 34, in said completing the micro mirror part, a lower low-stress insulated thin film layer, the silicon wafer and the embedded insulated film layer are etched whereby the micro mirror part is formed of the reflection surface and a silicon thin film layer.

36. The method of claim 34, wherein the torsion hinge portion is formed of the upper low-stress insulated thin film layer.

37. An optical transmitter using a variable optical attenuator comprising:

a base member formed in a predetermined shape;

an optical diode mounted at one side of the base member, and emitting an optical signal;

an output optical fiber mounted at one side of the base member, and receiving an optical signal; and

a variable optical attenuator actuated by an electrostatic force, changing a path of laser emitted from the optical diode, and thus adjusting optical power transmitted to the output optical fiber.

38. The transmitter of claim 37, wherein the variable optical attenuator comprises:

a substrate portion having a certain thickness and an area;

a linear actuator part formed at the substrate portion, and generating a linear actuating force by an electrostatic force;

a body portion isolated from the substrate portion, extended from one side of the linear actuator part, and moved by the linear actuator part;

a micro mirror part extended from one side of the body portion, and reflecting laser emitted from the optical diode according to a movement of the body portion; and

an elastically supporting portion formed at the substrate portion, and elastically supporting the body portion.